2017 Stream Survey Report

NORTH BRANCH EMBARRASS RIVER TREND SITE

(WBIC 301300)

Shawano County

Prepared by Joe Dax

Introduction and Survey Objectives

The North Branch Embarrass River consists of 34.75 miles of Class I, II, and III trout water. The North Branch Embarrass River originates in the northwest corner of Shawano county, flows southeast through Bowler, and eventually converges with the South Branch of the Embarrass River at Caroline to form the Embarrass River. Eighteen public road crossings along with 40 acres of DNR public land abutting the river provide fishing access to the North Branch Embarrass River. The River is managed as a mixed brook and brown trout fishery with brook trout as the dominant salmonid. Warmer summer temperatures are a limiting factor in the lower reaches from Bowler downstream to Tilleda. Objectives of the trend survey are to monitor relative abundance and size structure.

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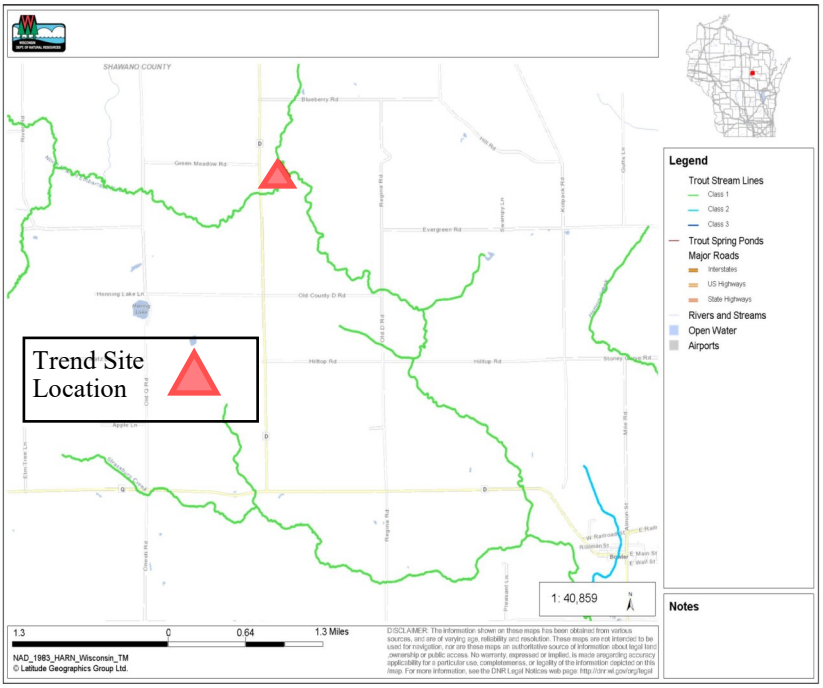
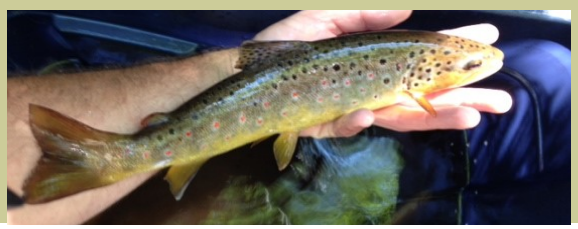
Survey Information						
Site location	**Survey Date**	**Station Length**	**Water Temperature (°F)**	**GPS (Start/Finish)**	**Gear**	**Number of Netters**
CTY Rd D Trend Site	08/02/2017	2,000 ft.	61	44.9034,-89.0344 / 44.9056,-89.0366	Towed Barge Shocker	3



Metric Descriptions

- **Catch per unit effort (CPUE)** is a method of quantifying fish population relative abundance. For all trout surveys, we typically quantify CPUE as the number of a given size class of trout captured per mile of stream. CPUE indexes are compared to other trout streams throughout the state of Wisconsin by what percentile (PCTL) they fall out in . For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state. CPUE percentiles can also be used to categorize trout abundance as low density (<33rd percentile), moderate density (33rd - 66th percentile), high density (66th - 90th percentile), and very high density (> 90th percentile).

- **Length frequency distribution** is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals.



Survey Methods

- The North Branch Embarrass River trend site has been surveyed annually since 2005. This particular station was 2,095 feet in length until 2015 when it was shortened to 2,000 feet. The station is electrofished with a towed barge streamshocker. All captured trout are identified to species, measured for length, and examined for fin clips.

- Metrics used to evaluate fish populations include catch per unit effort by size class and length frequency distributions.

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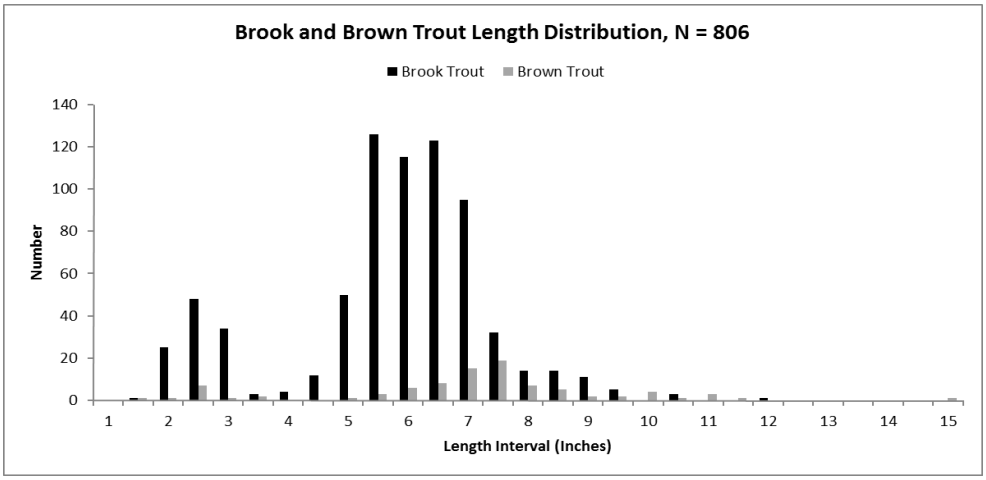

Size and Abundance (CPUE) Metrics - Brook Trout

Year	Average Length (inches)	Length Range (inches)	Number Sampled	CPUE calculated as the number of trout of a given size per mile (Number in parentheses represents the statewide percentile of a given metric)					
				Total CPUE (PCTL)	YOY CPUE	≥5" CPUE (PCTL)	≥8" CPUE (PCTL)	≥10" CPUE (PCTL)	≥12" CPUE (PCTL)
2008	5.6	(1.9 - 9.5)	596	1501 (90th)	264	809 (95th)	65 (80th)	0	0
2009	4.8	(1.5 - 10.0)	880	2217 (95th)	481	1073 (95th)	53 (75th)	3 (60th)	0
2010	5.2	(1.9 - 10.0)	604	1521 (90th)	413	997 (95th)	40 (70th)	3 (60th)	0
2011	6.0	(2.0 - 10.3)	793	1997 (95th)	249	1537 (95th)	139 (90th)	5 (65th)	0
2012	6.2	(0.7 - 10.4)	1136	2861 (95th)	161	2166 (95th)	418 (95th)	5 (65th)	0
2013	6.3	(2.1 - 10.8)	510	1285 (90th)	252	919 (95th)	272 (95th)	20 (85th)	0
2014	5.7	(1.5 - 10.6)	583	1467 (90th)	85	1015 (95th)	133 (90th)	5 (65th)	0
2015	6.1	(2.0 - 9.3)	352	929 (85th)	92	800 (95th)	79 (80th)	0	0
2016	5.7	(1.8 - 10.3)	477	1259 (90th)	277	934 (95th)	116 (90th)	3 (60th)	0
2017	6.0	(2.0 - 12.3)	716	1890 (95th)	292	1554 (95th)	127 (90th)	10 (75th)	3 (85th)

Size and Abundance (CPUE) Metrics - Brown Trout

Year	Average Length (inches)	Length Range (inches)	Number Sampled	CPUE calculated as the number of trout of a given size per mile (Number in parentheses represents the statewide percentile of a given metric)						
				Total CPUE (PCTL)	YOY CPUE	≥6" CPUE (PCTL)	≥8" CPUE (PCTL)	≥10" CPUE (PCTL)	≥12" CPUE (PCTL)	≥15" CPUE (PCTL)
2008	6.6	(2.0-12.5)	37	93 (40th)	28	65 (60th)	35 (45th)	13 (40th)	3 (40th)	0
2009	7.0	(2.2-13.9)	107	270 (60th)	15	186 (65th)	58 (50th)	23 (50th)	5 (40th)	0
2010	7.6	(2.3-14.8)	61	154 (50th)	23	123 (60th)	58 (50th)	35 (55th)	5 (40th)	0
2011	7.6	(2.5-14.6)	91	229 (60th)	13	204 (70th)	55 (50th)	35 (55th)	8 (45th)	0
2012	8.4	(3.0-17.9)	178	448 (70th)	10	368 (80th)	242 (80th)	131 (80th)	35 (70th)	5 (70th)
2013	7.8	(1.9-13.7)	102	257 (60th)	28	212 (70th)	113 (65th)	58 (65th)	18 (60th)	0
2014	7.2	(1.9-14.3)	176	443 (65th)	3	293 (75th)	134 (70th)	45 (60th)	15 (55th)	0
2015	8.4	(2.4 - 14.1)	46	121(45th)	8	97 (55th)	79 (60th)	24 (50th)	11 (50th)	0
2016	7.0	(2.2-13.4)	116	306 (65th)	11	256 (75th)	37 (45th)	13 (40th)	8 (45th)	0
2017	7.3	(2.0 - 15.4)	90	237 (60th)	32	195 (65th)	69 (55th)	26 (50th)	3 (35th)	3 (65th)

Summary

- Results from the 2017 survey showed that brook trout comprised 89% of total catch and densities remain high, with all adult size classes being above the 75th percentile when compared to trout streams throughout Wisconsin. Furthermore, this year was the first time a brook trout > 12.0 inches was captured. This site on the North Branch Embarrass River provides potential for both high catch rates and has trophy potential for brook trout.
- Brook trout young of year (YOY) relative abundance increased to its highest recorded density since 2010. Continued consistent recruitment should ensure a good brook trout fishery into the future.
- Densities of adult brown trout in 2017 decreased 20% compared to the 2016 survey, and were the second lowest observed since 2010. However, the 2017 survey marked only the second time in the last 10 years that a brown trout > 15.0 inches was captured at this site. Results from rotational surveys completed on the North Branch Embarrass River this year show that sections downstream from the trend site, around the town of Bowler have higher total densities as well as higher densities of large brown trout. If water temperatures warm, conditions in the upper reaches may become more favorable for brown trout in the future.
- Brown trout young of year (YOY) densities remained low and were similar to those observed over the previous 10 years.
- The North Branch Embarrass River would be a good stream to focus easement acquisition and future habitat development.